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## ARTICLE

# Sufficiency in social practice: searching potentials for sufficient behavior in a consumerist culture

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To live a life of sufficiency in a consumerist culture may be one of the most ambitious experiments an individual could undertake. To investigate this challenge, we employed a social-practice approach. This article is based on 42 qualitative interviews asking respondents why and how they acted in a sufficient way within a Western infrastructure and culture. The results indicate that sufficiency-oriented people draw on particular meanings in everyday-life practices when adopting relevant resource-extensive actions. These understandings encompass an amalgam of environmentally friendly attitudes, positive social intentions, and/or personal commitments to thriftiness. We further identified a set of specific practices—including sharing, recycling, and reusing—as useful for the adoption of a sufficient lifestyle. For our respondents, many of these sufficiency practices occurred regularly in daily life and were rarely questioned. Using an additional survey, we show that these routines lead to less resource-intensive lifestyles and demonstrate how a small group of people has been able to habitually adopt sufficiency practices. However, the majority does not see a need for more frequent implementation of such routines because daily decision-making processes are widely focused on the consumption of products.

KEYWORDS: consumerism, social practice, sufficiency, consumption, behavior, social impact, environmental impact

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## Introduction<sup>1</sup>

After decades of industrialization and globalization, advanced economies have become significantly more efficient in their use of materials despite mounting environmental pressures (Meadows et al., 2004; Princen, 2005; Rockström et al. 2009). While prior to the Industrial Revolution, people lived more sufficiently, industrialization triggered exceptional levels of wealth and luxury and enormous increases in the volume of private consumption, leading to accumulating environmental stress. In short, “current consumption patterns are simply unsustainable” (Assadourian, 2010), to the extent that changes in consumer behavior are crucial to sustainable development (Sanne, 2002; Shallcross & Robinson, 2007; Alcott, 2008; Bliesner et al. 2014). However, such strategies are likely to be ineffectual in the absence of substantial reorganization of society and its sociotechnical regimes, for instance in introducing product-service innovations (WBGU, 2011; Rohn et al. 2013).

To ensure protection of the global environment, households in developed countries will need to adopt new consumption routines (Spangenberg & Lorek, 2002; Fuchs & Lorek, 2005; OSTERVEER & SONNENFELD,

2012). Our current sociotechnical regime strongly promotes efficiency and consistency, while usually excluding sufficiency due to its assumed unattractiveness and conflict with the economic system, which depends on consumers’ purchasing power (e.g., Defila et al. 2012). As with more radical sustainability strategies such as degrowth or downshifting, sufficiency suffers from both low salience and disregard. The idea of absolute reduction in material use faces strong resistance in industrialized countries.

Sustainability scientists contend that, depending on the field of activity, a 40–80% reduction of current consumption levels is required (Lettenmeier et al. 2014). This level of attenuation is not possible unless we begin to consider more radical strategies premised on notions of sufficiency (Buhl, 2014). A change in mobility is needed as well as a reduction in housing, nutrition, and leisure practices. Within these considerations, the level of consumption has to be tempered using strategies such as sharing, recycling, and repairing, as well as renunciation.

This article seeks to advance understanding of why people adopt resource-light, or even sufficient, lifestyle routines, despite what can be construed as a generally hostile social context regarding sustainable consumption. The following sections focus on everyday practices that have been at the center of recent research on sustainability (Cohen et al. 2013).

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<sup>1</sup> The article is partly based on the PhD dissertation written by Melanie Speck née Lukas.

We explore some of the most important social practices in the field of sufficiency, remaining aware that the normative notion of sufficiency still suffers from a lack of empirical data. In addition, there is insufficient appreciation regarding practical strategies to improve contemporary consumer culture (Schneidewind & Zahrt, 2013).

This article draws on work from two so-far mostly separated research areas—social practice research and sufficiency. On one hand, we turn to the broad field of inquiry on social practices, which takes a micro-consumer perspective to investigate the challenges of achieving a cultural transformation toward sustainability (Halkier & Jensen, 2011; Hargreaves et al. 2013). The concept of social practices, as developed primarily by sociologist Elizabeth Shove (e.g., Shove et al. 2012), has not been deployed to explore issues pertaining to sufficiency; however, we reconsider this framework from the angle of sufficient behavior in daily life. Our objective is to empirically ground the notion of sufficiency in terms of social practice theories of consumption. After drawing an intermediate conclusion regarding the integration of these two concepts, the second section introduces our methodology to empirically integrate sufficiency into a social practice framework. We use a grounded theory approach based on 42 interviews to define characteristics of sufficiency. In the third section, we present the results by focusing on activities in the domains of mobility, nutrition, housing, and leisure. The conclusion discusses aspects of change that consider sufficient social practices and identify avenues for further research.

## Theoretical Background

### *Social Practice: Leading Change on a Micro-Level*

In recent years, theories of social practice have gained considerable attention in research on consumer behavior (Gronow & Warde, 2001; Reckwitz, 2002; Shove & Pantzar, 2005; Röpke, 2009; Brand, 2010; Shove et al. 2012). These perspectives derive largely from sociological theories developed by Anthony Giddens (1984) and Theodore Schatzki (1996), who put social practices in the center of their theoretical conceptions. Reckwitz (2002) later aimed to integrate these perspectives into a more cohesive framework that advanced a practice-centered sociological approach based on the original idea of duality of structure. He accordingly identified social practices as the location of the social, where action and structure are mediated.

We concentrate here on the question of sufficiency in the sense of engaging in less resource-intensive modes of consumption (or even non-

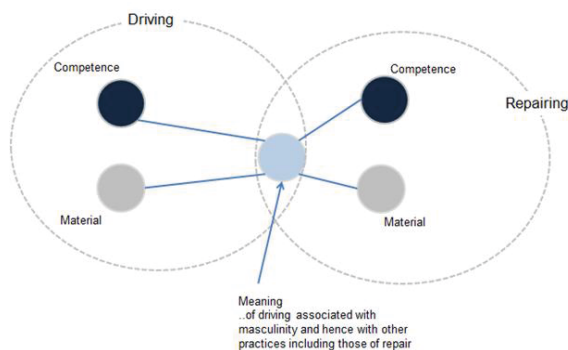
consumption) since more attention is needed to the link between practices and consumption (Sage, 2014; Strengers & Maller, 2015; Lukas, 2016). Warde (2005) argues that consumption is not a practice itself, but rather an assemblage of many distinct practices. Accordingly, approaches for studying practices should emphasize the ordinary and unreflected occurrence of consumption in most daily routines, shifting attention away from individual actions to the organization of practices and the level of consumption that they entail. For example, jogging is not only related to the actual performance of running but also to other practices, like taking part in competitive sporting events or engaging in consumption decisions favoring the purchase of breathable clothing or specialized shoes. Thus, these so-called side events also increase an individual's resource use in practice (see Backhaus et al. 2013; Lettenmeier et al. 2014).

Particular styles of consumption are interwoven with social practices of certain activities, as well as with daily household activities (Brand, 2010). The interdependency among routines, technological artifacts, social acceptance, and norms is therefore closely linked (Reckwitz, 2002; Jackson, 2005a; Warde, 2005; Röpke, 2009). Consumers then combine a number of practices related to nutrition, mobility, and so forth and assemble them into lifestyles (Spaargaren & Vliet, 2000; Spaargaren, 2003; 2011). Lifestyles can be understood as a bundle of practices that actors adopt as part of a reflexive project of the self (Giddens, 1991), even though we should not neglect the social shaping of the elements of practices or the often substantial barriers to individual change.

Further condensing the theoretical work, Shove et al. (2012) identify three elements of practices and show the aspects behind these elements: *meanings* (mental activities, emotions, motivational knowledge); *materials* (objects, infrastructures, tools, hardware, body) and *competences* (understanding, practical knowledgeability). Shove and her colleagues also demonstrate how different social practices might be interrelated by having a similar element in common. For instance, driving and repairing cars share a common image of masculinity (see Figure 1).

Within the environmental social sciences, a growing number of authors deploy various practice-theoretical approaches to analyze the greening of consumption in the new global order of reflexive modernity. Practices are key methodological units for research and governance and provide ways to avoid the pitfalls of individualist paradigms that have tended to dominate studies of sustainable consumption (Spaargaren, 2011). Previous empirical

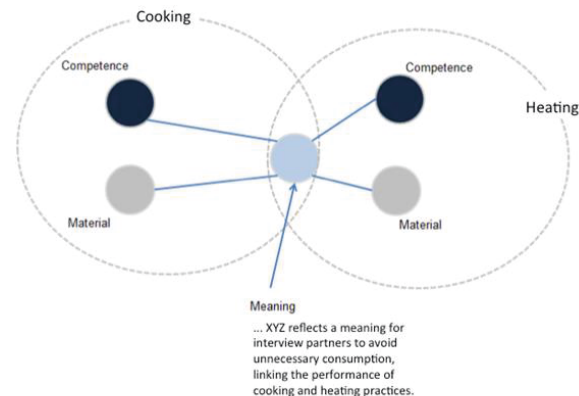
work on consumption and social practices has shown the methodological challenges of such approaches (Evans, 2011; Halkier & Jensen, 2011; Hargreaves, 2011; Sahakian & Wilhite, 2013). For instance, Halkier & Jensen (2011) describe two advantages of a constructivist approach to social practices in terms of 1) understanding consumption as entangled in webs of social reproduction and changes rather than focusing on individual consumer choices, and 2) viewing ways of consuming as continuous relational accomplishments in “intersectings of multiple practices” (Halkier & Jensen, 2011). Here, the concept of duality of structure and agency that is inherent in practice theories offers important insights. Using such an understanding, Evans (2011) shows that food waste is not a consequence of immoderate consumer choices but rather a matter of managing the multiplicity of everyday practices and contingencies. A problem of a purely constructivist perspective, as promoted by Halkier and Jensen (2011), however, is to foreground the discourse and negotiation of normative elements in consumption among practitioners at the expense of downplaying factual knowledge about boundaries or indicators.



**Figure 2** Meanings of sufficiency linking the performance of consumption to engagement in social practices, for example, cooking and heating (adapted from Shove et al. 2012).

Practice-theoretical research pertaining to sustainable consumption thus highlights the social embeddedness of consumption, the negotiation that takes place within social networks about normative elements, and the acceptability of practices, power relations, and intersections of different daily routines. Nevertheless, to date most of these studies lack a clear concept of sustainability and fail to analyze practices in the most environmentally relevant fields of activity (housing, food, and mobility; see Lettenmeier et al. 2014).

The following sections explain sufficiency and how it is actually performed, using different strategies from the perspective of social practice. It is



**Figure 1** The concept of meaning in two related practices (adapted from Shove et al. 2012).

important to consider another point of differentiation, namely that between *practices as performance* (i.e., tangible, observable actions, different skills, knowledge and competences that actors need to engage in practices, as emphasized by Reckwitz, 2002) and *practices as entities* (representing a concept of social structure related to Giddens’ idea of rules and resources as stressed by Schatzki, 1996). The latter represents institutionalized social practices that are similarly (re)produced by a large number of actors in a social system bridging time and space. This also accounts for individual deviation in practice performance without any effect on practice as entity.<sup>2</sup> Figure 1 illustrates how Shove et al. (2012) conceptualize links among different practices, for instance through similar meanings connected to various practices in a related field of action (in this case automobility). In Figure 2, we adopt this idea to show how a specific meaning to avoid unnecessary consumption can link different social practices as exemplified by home heating and cooking.

Based on the results and concepts of previous work (most prominently Shove et al. 2012; see also Stengel, 2011; Liedtke et al. 2013), we propose that meanings are the most important element in implementing change and further claim that a specific constellation of meanings is a linking element among various practices in different fields of activity (e.g., mobility, nutrition, housing) when consumers perform actions considered as sufficient. Speaking of a currently dominant consumerist society, the linking element among almost all institutionalized and routinized practices, involving some kind of consumption, is a meaning associated with material wealth as accumulation of goods and with ownership

<sup>2</sup> In the terminology of social practice theories, performance refers to a set of practices that are considered within the context of daily frameworks.

as a central orientation. This is not to say that all consumers are oriented toward a “simple” or “more is better” logic. Rather, at least in some sociopolitical contexts, the contrary is increasingly the case, since a number of developments have sensitized consumers to the environmental and social implications of their consumption. For example, organic food and fair-trade products have gained visibility among the general public. We should nonetheless differentiate consumption patterns between a shift to consuming the “right” goods (such as organic food) and voluntary downshifting (which we here consider as a form of sufficiency motivated by a desire to avoid consumption deemed as unnecessary) (Schrader & Thøgersen, 2011; Schrader et al. 2013).

We therefore take an empirical approach and analyze the meanings that respondents associate with their social practice performances. Also considered are the barriers and other contingent factors that they experience when experimenting with sufficient modes of consumption, as well as the strategies that they adopt to overcome these obstacles. We are thus able to identify strategies that support larger scale changes of social practices. Our study aims to encourage practice reconfiguration and eventual re-institutionalization at the level of practice as an entity (cf. Cajasanta, 2014).

Social practice approaches are limited, however, in that at first sight they focus on routines and social reproduction rather than change. More recent theories of practices have sought to overcome this limitation by focusing on the alteration of elements or links among different practices. Shove et al. (2012) suggest that the dynamic and recursive interrelation between practice-as-performance and practice-as-entity is useful to show how innovation in practices occurs by, for example, forging new relations among elements. Shove et al. (2012) further discuss how these new connections can evolve into enduring changes at the level of practice-as-entity. It is, though, still problematic to explain when or under what circumstances actors are more likely to deviate from routine practices or which competencies require change.<sup>3</sup>

### ***Sufficiency: Leading Transformation in Practice***

Sufficiency has unfortunately come to be seen as a mediating strategy, one regularly considered as a

focus for research, but is less dedicated to exploring daily life (Princen, 2005; Stengel, 2011). In science, the strategy is meant to develop behavioral approaches to guide consumer choices, but too often fails due to its lack of empirical grounding (Linz, 2012). According to Princen (2005), the principles and strategies that accompany sufficiency also employ self-management to avoid overconsumption. The concept asks whether products or goods deliver an additional benefit and which aspects increase utility and which do not (Liedtke et al. 2013). Sufficiency requires social learning and is less about losses and restraints than striving to maintain, or even to increase, individual welfare, which can be seen as the easiest solution for daily life.

Popular media today has shown interest in minimalist lifestyles, both with and without reference to sustainability. For instance, widely disseminated magazines regularly investigate the consequences of less materialistic lives, including cases where young people own little more than a computer and a few everyday objects (*Der Spiegel*, 2014). Nevertheless, a sufficient lifestyle goes further since it is less about the reorganization of private consumption patterns and more about the philosophical question of “a good life.” “Sufficiency” as a term tends to be excluded from debates about the sustainable transformation of behavioral patterns. Despite general acceptance, at least in some quarters, of claims that a shift in consumption patterns is necessary to reduce dramatic disruption of ecological systems, concepts such as “downshifting” (Schor, 1998; Hamilton & Mail, 2003) and “non-consumption” remain confined to peripheral niches (see Black & Cherrier, 2010; Cherrier et al. 2011; Cherrier & Gurrieri, 2013).<sup>4</sup>

When consumption is reduced, for instance, the outcomes usually include monetary savings or co-benefits such as improved health for those with low-resource mobility (Stengel, 2011; Lukas et al. 2014). People often employ sufficient practices without conscious awareness, and within this lifestyle social practices are frequently modified (e.g., vegetarian diet, holidays without long-distance travel, mobility without using private cars). There is thus a strong connection to downshifting. Downshifting often modify their regular lifestyle to spend more time with their families or toward less materialistic and more sustainable modes of living, as well as a reduced workload (Hamilton & Mail, 2003; Liedtke et al. 2013). Moreover, sudden events such as a severe illness, the death of someone close, or a marriage breakdown influence the decision to downshift in a

<sup>3</sup> The Research Group on Sustainable Production and Consumption at the Wuppertal Institute is developing a model for research and transformation of social practices toward sustainable patterns of production and consumption (Liedtke et al. 2013). By integrating social practice theories with models from environmental psychology and transition theory, this work aims to establish a theoretical basis and methodological framework for research and design of transforming social practices toward resource-light patterns within a social innovation framework.

<sup>4</sup> The German academic understanding of sufficiency is rather wide and often includes the notions of simplicity, anti-consumerism, and nonconsumerism.



way that can be equivalent to the theoretical construct of sufficiency. Thus, strict downshifting may be seen as a radical strategy to implement sufficiency in daily life (Alexander, 2011). Further research activities coinciding with anti-consumption and non-consumption might intersect with a sufficient lifestyles (Cherrier et al. 2011; Cherrier & Gurrieri, 2013).

Based on these findings, sufficiency is defined by tangible behavior patterns and is not necessarily linked to a moral concept of “less is enough” (Schneidewind & Zahrnt, 2013). Across the board, we assume that the reduction of ecological and social impacts is the most important element of a sufficiency strategy in everyday life (Stengel, 2011). Sufficient actions are certainly linked to notions of sharing, reusing, recycling, repairing, or changing behavior to prolong the lifespan of goods. Further, sufficient action is connected to a partial abandonment of goods and services with high resource intensity. A sufficient way of living includes ecological and socially fair practices. This may encompass abstaining from overseas travel or keeping a personal car, but also voluntary restrictions pertaining to plant-based foods or housing in a small apartment, preferably either in or proximate to a city. A sufficient lifestyle may include restriction on certain leisure activities or the avoidance of functional or cultural obsolescence (Tukker et al. 2008; Lukas et al. 2013; Lettenmeier et al. 2014; Liedtke et al. 2014), as well as the reduction of working time (Müller & Paech, 2012; Paech, 2013).

In sum, adequate competences and moral concepts are irreplaceable for a sufficient lifestyle. Consistency of action and knowledge, with a distinctive orientation toward social and environmental issues, are likewise important, as Kleinhüchelkotten (2005) proposes. However, it has to be emphasized that moral concepts (as part of meanings) and competences in social practices are socially constructed and not simply opinions learned or held individually. The challenge is to examine competences at the level of practices that could be useful and practicable.

Based on the research reviewed above, we propose the following working definition of sufficiency, which we apply to our qualitative research. Sufficient behavior implies reducing environmental and social impacts that go along with daily routines and behaviors. These arrangements include classical actions of consumption schemes such as shopping for food or clothes in conventional supermarkets and stores, alternative behavioral schemes such as repairing or recycling, and the idea of waiving some consumption practices. Therefore,

sufficiency at the level of household implementation indicates modified cultural techniques (social practices) in as many household consumption areas as possible but generally encompassing mobility, nutrition, housing, and leisure.

### Intermediate Summation: Linking the Concepts

Drawing on these findings and descriptions, we derive a qualitative comparison scheme of consumption patterns displaying several everyday practices that enable comparisons of sufficient and nonsufficient behavior. Table 1 describes conventional and sufficient behavioral patterns through the lens of practice performance, and thus includes several exemplary practices in the fields of mobility, nutrition, housing, and leisure with categories inspired by Spaargaren (2011). The aim is to establish a starting point for classifying interview statements since in daily activities consumers do not consistently act sufficiently.

From our perspective, it is important to define sufficient practice performance in the context of real-world conditions. This understanding is based on a conceptual approach that examines and integrates sufficient actions in a consumerist culture without provoking a break with daily narratives and meanings, thus creating a concept of sufficiency that fits into daily life. Bringing together both concepts of social practice and sufficiency makes obvious the need for an empirical data set to embed and develop the theoretical approach in everyday consumption.

Table 1 uses a basic matching scheme to interpret the extreme poles of practice performance between conventional consumption and sufficient behavior. The table also serves as an ideal lens to assess our interview results. In reality, such behavior should be understood as a continuum. Thus, within the same household, a variance between different activities can be expected. For example, consumers might show sufficient practice performance in the field of nutrition but not in mobility.

As outlined above, we propose that a specific constellation of meaning is a linking element between different social practices in different fields of activity (e.g., mobility, nutrition, and housing that is considered sufficient). In the next section, we apply this scheme and the conceptual approach to systemize the empirical interview data and to analyze the three dimensions of social practices. After introducing the methodological study design, we focus on sufficient actions in daily life and their meanings, competences, and practice performance. We analyze the interviews

**Table 1** Performances in conventional and sufficient behavioral patterns

| Framework   | Mobility  | Nutrition  | Housing   | Leisure  | Vision of Individual Consumption Behavior  |
|---|---|--|---|--|--|
| <b>Conventional consumption [no restriction]</b>  | Using all mobility infrastructures without limitation, primarily individual cars  | Buying discount and retail products, only conventional food, regularly using takeaway offers | Living in old buildings without restriction on space, partial energy saving in heating, electricity, water  | Using full range of travel possibilities (skiing, Caribbean cruises)   | Focus on "conspicuous consumption" and buying durable goods only in specific areas of consumption        |
| <b>Sufficiency [Restriction at the level of individual actions up to time-consuming behavior changes]</b> | Primarily traveling by train and public transport, using a bike, not owning a car | Exclusively buying seasonal and organic food, maintaining a vegetarian or vegan diet.        | Inner-city, energy-efficient buildings, medium size of dwellings (maximum 30 square meters per person), collective usage of basic commodities, strong energy-saving for heating, electricity, water | Shifting holiday destinations to regional level, travelling by bicycle or train, maximum of 1–2 trips per year | Often using second-hand goods, online exchange platforms, sharing services, generally avoiding new goods |

Based on: Gregg (1936), Leonard-Barton (1981), Jackson (2005a), Princen (2005), Schor (2011), Stengel (2011), Alexander (2012), Lettenmeier et al. (2012), Müller & Paech (2012), and Lettenmeier et al. (2014).

to identify the main categories that respondents use to frame their daily routines related to the different fields of consumption and show which circumstances they perceive as helpful or unhelpful. We present examples from the material for the main categories, themes, and sub-themes that emerged from coding the interviews and analyze them through the theoretical lens provided by the three elements of social practices.

Primarily to underline our results and argumentation, we conduct a model calculation of resource use for a sufficient lifestyle, matching it with the assumptions of a resource-light lifestyle (Lettenmeier et al. 2014). Finally, we consider the following research question: *What is the most important element to cause social practices to become more sufficient?*

### The Study: Describing Sufficiency Using an Empirical Data Set

To identify sufficiency in everyday practices and their linked performances, competences, and meanings, we studied typical consumers. The research used a grounded-theory methodology to gather and analyze a qualitative data sample (Glaser & Strauss, 1967; Corbin & Strauss, 2008). A first feature of this approach was that the respondents should have a "regular" approach to life with no special commitment to sufficiency, for example to downshifting.<sup>5</sup> Second, we sought interviewees that

lived in a conventional German suburban or urban setting within the common consumer society. In other words, radical downshifters who had moved to a wooden house and tried to live autonomously were not part of the sample. Similarly, individuals who had lost a job and were forced to drastically reduce their consumption were excluded from the study. Respondents were recruited through universities, virtual social networks and, to reach seniors, clubs for the elderly. The participants were sought out using a widespread pyramid scheme. The elderly people were all contacted in clubs, while the middle-agers who had responded to announcements in virtual networks were also asked for suggestions for other participants, and the same was done with the students. Thus, one interview led to another.

Prior studies using a practice-theoretical approach have encountered methodological obstacles both in data production and in generalizing results (Evans 2011; Halkier & Jensen 2011). Concerning data collection, Evans (2011) favors a research strategy of participant observation that focuses on actions as demanded by practice theory. Given the challenges of conducting ethnographic research with private households, the preferred strategy is for the investigator, at least to some extent, to join in activities of the respondents. Such a research design is demanding and often necessarily entails scaling back the number of participants so as not to exceed available resources. Consistent with Halkier & Jensen (2011), we assume that all qualitative data can be treated as enactments and performances of social practitioners in different contexts and therefore opted for interview data.

<sup>5</sup> For this article, we focus on a group of sufficient respondents (n = 7) and on the group of moderately sufficient interviewees (n = 30) so as to highlight the results of these two groups.

The empirical analysis in this article is based on 42 interviews. The sample consists of participants varying in gender and socioeconomic status from three different age groups—young adults, empty nesters, and golden agers—to generate different perspectives on daily consumption and schemes of sufficient action.<sup>6</sup> All respondents lived in Germany, but the sample is mixed, with the majority from the western part of the country.<sup>7</sup> Interviews were conducted using a problem-centered protocol (Witzel, 2000). The focus was on everyday consumption and participants' concept of consumption, as well as attitudes toward environmental and social issues deemed to influence consumption patterns and decisions. The interviews averaged sixty minutes in duration and were digitally recorded and transcribed for analysis using the software package ATLAS.ti. Following the grounded-theory approach, we first investigated each interview transcript in detail to generate a general understanding of every respondent's experiences and the influences on their consumption in different phases of life. Second, a constant comparative coding and cross-comparison of interviews was carried out to form categories. Finally, these categories were formed and summarized into key and subcategories.<sup>8</sup>

We analyzed the interviews using an inductive strategy of creating main categories and subthemes (Glaser & Strauss, 1967; Corbin & Strauss, 2008) (Table 2). The outcomes presented here are the result of a year-long examination of all interviews using the grounded theory approach and associated coding system. The respondents have a robust connection to consumerism due to their social settings—the majority was middle-class Germans.

The sample enables us to understand social practice in the context of sufficiency and provides the evidence base to identify the opportunities and barriers for a sufficient way of life. By now, the sufficiency strategy is, from our perspective, more often integrated in actions and practices than current science is able to prove. Regarding the ability of practice research to make generalizations beyond methodological individualism (Halkier & Jensen,

2011), we build types not to categorize consumers individually or by lifestyles but to find relatively stable meanings in certain sufficient practice performances.

During the course of the coding process, we identified meanings in the participants' description of their practices-as-performance. Meanings at the level of actual practice-as-entity could be found by identifying common aspects across cases and by drawing on existing literature.

We assembled the quantitative results to calculate the resource use into a spreadsheet with several closed questions conducted by six persons. This survey was done after the main interview. Questions included "How often do you eat meat per week?" (Possible answers: I eat meat one/two/three times per week or more than three times; I am vegetarian; I am vegan) and "Do you have a car?" (yes/no). This part of the study was carried out by telephone only with respondents who agreed to complete the second questionnaire. The method of utilizing a spreadsheet to calculate the resource use in several fields of action such as nutrition, mobility, housing, and leisure is based on Wiesen et al. (2014).

## Findings and Discussion: Sufficient Action in Everyday Life

In this section, we analyze our sample to provide an overall outline on several important themes, following grounded-theory methodology. The sample was screened to examine daily social practices that are compatible with a sufficient lifestyle. Thus, consumers can usually be regarded as partly sufficient, or even only sufficient in a few fields of actions. With the help of the following main categories, we map various impact factors and decision-making structures, but first we point out the resource intensities of different lifestyles.

### *Matching Lifestyles and Resource Use<sup>9</sup>*

Within debates and analyses pertaining to sufficiency, commentators frequently ask what constitutes a "better" lifestyle. In our case, we follow a descriptive approach of empirically classifying sufficient performances of everyday social practices and link our results to research and policy discussions about quantifying the resource use of specific activities without rendering any assessment about "better" or "worse" lifestyles. This connects to overlapping considerations about "environmental space" (Spangenberg & Lorek, 2002) and "safe economic operating space" (Rockström et al. 2009),

<sup>6</sup> We actively excluded potential respondents in early parenthood, since Jaeger-Erben's (2010) work was devoted to such individuals.

<sup>7</sup> We acknowledge that some of our results may be particular to the circumstances of our study, which focused on respondents with German cultural backgrounds. Consumption styles might differ elsewhere.

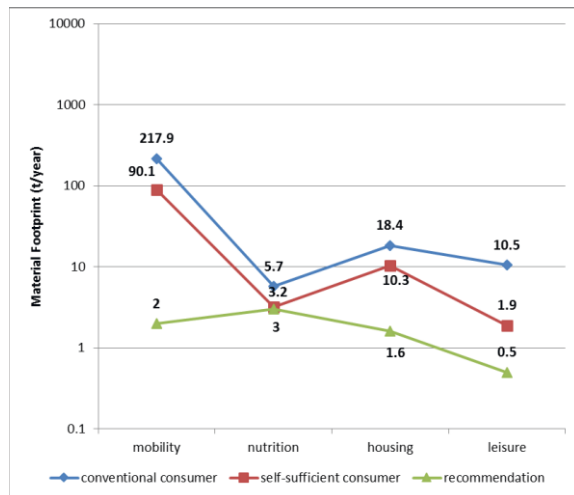
<sup>8</sup> We note here that the interview responses were strongly related to sufficient practices. This may suggest that a majority of respondents acted sufficiently, but in fact the largest share were classified as non- or slightly sufficient. Therefore, the selection discussed in this article refers to the smallest part of the sample, namely the participants who were identified as strongly sufficient. See Lukas (2015) for further details.

<sup>9</sup> This section is based on calculations from Lukas (2015).

to which we add the self-descriptions of respondents about their voluntary sufficiency.

For this reason, we analyzed the resource use of various lifestyles using a material footprint-calculator method (Wiesen et al. 2014). Based on the interviews, we selected from our sample one individual deemed to live most sufficiently and a counterpart from the opposite end of the spectrum who had the least sufficient (or most conventional) lifestyle. Using the interviews described above, as well as a second short interview done in 2014, we calculated footprints, showing that car ownership and diet are consequential factors. The results demonstrate that the resource use for a conventional consumer is three to five times greater than for a strongly sufficient consumer, although this depends on the field of action (Figure 3).

The differences are obvious. In comparison to suggested magnitudes of resource use (the so-called recommendation level, proposed by Lettenmeier et al. 2014), even the most sufficient consumer had higher resource use in nearly every field of consumption.<sup>10</sup> Interestingly, nutrition (the daily diet) is the only area where this respondent was able to meet the ideal typological assumptions. Nonetheless, the comparison shows that a more sufficient way of living is far less resource intensive than a conventional lifestyle. This underlines the potential impact of sufficient practices, for which we next present detailed descriptions derived from the qualitative study.



**Figure 3** Comparison of resource use (material footprint) of two relevant consumers in comparison with the suggested target level

Lettenmeier et al. (2014) propose a sustainable lifestyle that on the level of practices entails the following: a vegetarian diet, a small suburban flat (< 25 square meters per person), regional holidays, and an individual mobility strategy based on public transportation, biking/walking, and avoidance of air travel.

### *Behavioral Orientations in Daily Life*

In the field of sustainable consumption or sufficiency, key studies try to analyze the improvement of knowledge about the ecological and social consequences of certain consumption habits and possible alternatives. However, other research over the last few decades, especially in environmental behavior, has found low correlations among knowledge, attitudes, and behavior (e.g., Diekmann & Preisendörfer, 1992; 1998; Alcott, 2008; Bamberg, 2013). Current findings in environmental psychology indicate that changes in attitudes and behavior are mediated through a multi-stage process where orientations, social norms, and shared beliefs highly influence personal doings. This problem is often referred to as the knowledge-action gap (see Matthies, 2005; Möser & Bamberg, 2008; Bamberg, 2013). As we discuss, due to special meanings that undergird the practices, the former may change or even shape the latter (Shove et al. 2012). Furthermore, our research makes clear that group dynamics often influence attitudes. Thus, the social settings and surroundings are important for the output of consumption strategies or orientation toward a change (Thøgersen & Ölander, 2002). As presented above, a broad range of attitudes exists; we therefore examine the most important practice performances as a way to generate a guiding orientation.

Everyday consumption practices are heavily driven by convenience, habits, monetary value, personal health concerns, and social and institutional norms. But even more importantly, practices are likely to be resistant to change (Vermeir & Verbeke, 2006). The idea of consuming less is necessarily based on different strategies, basically reusing, reducing, recycling, repairing, or sharing (Lukas, 2013). The implementation of these action patterns is ultimately based on practices, especially in private households. Therefore, we analyzed how these tactics are expected to shape everyday routines, even in a consumerist culture where the previously cited norms have been adopted in daily life.

A sufficient lifestyle coincides with the idea of consuming less, or even virtually nothing. In the sample, many respondents living in a consumerist culture described that they experience property as “ballast.” For instance, one respondent stated that he was always worried about his car. He had to repair it on a regular basis and at great expense. After coming to terms with his situation, he adapted to life without a personal automobile and instead relied on shared cars,





**Table 2** Selected study participants

| Person groups          | Number of persons | Age   | Gender          | Professions (examples)  | Status  | Persons' Net-Income in € (\$) per month |
|------------------------|-------------------|-------|-----------------|---|---|---|
| <b>Youngsters</b>      | 17                | 22–29 | 10 (F)<br>7 (M) | Students and trainees   | Single or in relationships  | 500–1500<br>(542–1626)                  |
| <b>Empty nesters</b>   | 12                | 49–65 | 7 (F)<br>5 (M)  | Research fellow, teacher, social worker, bakery shop assistant, engineer, early-retired persons | In relationships, Married, divorced, all with children, even grand-children | 1250–3000<br>(1355–3253)                |
| <b>Elderly persons</b> | 13                | 63–92 | 10 (F)<br>3 (M) | All retired workers and housewives  | Married, divorced, widowed, all with children and even grandchildren        | 1250–2000<br>(1355–2169)                |

which were much easier for him to manage.

With respect to their level of consumption, the respondents reflected that they kept owned goods to a necessary minimum for everyday life, a pre-disposition maintained by their prevailing attitudes. Younger participants were especially connected to environmental and social justice without desiring a high level of property.

The seven most sufficient respondents acted in a very different manner, compared within the sample of interviews, to reduce or avoid consumption, both consciously and unconsciously. Their motivating meanings in detail, which might be embodied as well in the overall meaning, extended from saving money and health concerns to flexibility. In general, sufficiency-oriented patterns of action also correlated with meanings of anti-materialism, reduction of consumption, and belief that property increases lifestyle rigidity, as described above. However, sufficiency also addressed quality aspects connected to resource consumption.

So I think I'm frugal when I compare myself to others, but I'm somehow not a miser. So I give in then...so I also invite people. So it's not like I invite everyone, at least not voluntarily, that I count every Euro and so on. So yes, somehow I'm thrifty. Then I do not buy the cheapest stuff; actually I rather buy the higher quality things, because I find if it needs a repair...also because of resource consumption anyway (Nathalie, age 30).

The respondents demonstrated that a sufficient life is not strictly related to austerity, but can also be about looking for durable products or connected to a willingness to spend money on quality. The next sections provide three guiding principles that were found to inform decisions in daily life.

#### ***Guiding Principle: Doing Without***

The respondents that defined property as “ballast” were often not striving for a great change in life, such as a higher income or even a larger residence. Their meaning was more focused on being frugal and easily satisfied within their daily life. They were trying to manage within their own space and to cover their own needs. Following the approach of Opschoor (1995), the majority of participants in our study already defined their own needs in their current phases of life using the individual environmental space within which they acted rather than following the latest consumption trends. Of course, they saw a need for basic equipment in every household, but nothing lavish. One of the older respondents, Heinrich, age 83, did not gravitate to more household goods, saying it will “only end up in a bin” after his death.

These respondents thus viewed owning many goods as unnecessary in their lives, or even as disturbing. The reasons for this view varied and were by no means only associated with anti-consumption attitudes. Rather, this meaning corresponded to different life phases and attitudes regarding whether further consumption was necessary. One of our study participants summarized it this way.

I always really feel material things as ballast. And I think it's great if you have only a little room full of stuff and you can pack anything quickly in a box somehow and can move with it (Sabrina, age 27).

Our sample offered a wide range of *doing without* and illustrated how meanings assimilate into practices and competences. Starting from typical ideas of brand avoidance or nonconsumption (Lee et al. 2009) and going as far as the dissemination of clothes or tools, another respondent displayed how the special meaning was adjusted in performance and competences.

Yes, somehow I am quite militant. For example, my mother once gave me a car and then it was standing next to our front door for two weeks and then I went to her house and I said, "Mother sell it." Yes, at that time it was 1984. Because, if you have lived without a car for a while, you won't miss it. It's all easier without a car. And that is quite an amazing experience. We have actually even rented a car, to go on holiday...the car was not needed (Markus, age 65).

In this case, rejection of material goods was supported by an overall meaning and its strong belief. In the special field of mobility, evasive strategies are necessary, for example, to go by train or walk.

To summarize, such purposeful reflection on consumption behavior against generally effective norms of consumerism, or an orientation toward owning few but high-quality and durable goods, provided another general meaning associated with sufficient practice performance in different fields of consumption. It guided and supported performances considered sufficient such as repairing and sharing and thus doing without excessive material goods.

### ***Guiding Principle: Establishing Islands of Enjoyment***

Another practice set, "establishing islands of enjoyment" (as one respondent called her own little escapes from daily obligations), coincided with an individual definition of rejection and reduction in daily life and was strongly linked to the performance of "doing without" that guided everyday actions. Within this category, the idea of a sufficient life was already adopted by acting restrictively in everyday consumption. People may reject a holiday or be vegetarian or otherwise reduce consumption activities. By establishing certain so-called islands of enjoyment, our interviewees demonstrated that they were searching for possibilities to act completely

contrary to their personal conviction of restrictions for a short time. These behavioral expectations opened up space to "escape" from regular activities and to allow one afterward to re-appreciate everyday routines.

I think the more consciously we restrict, the more we have to look out for creating a feeling of happiness or satisfaction by doing other things (Eveline, age 53).

The imposed restriction was generally balanced by several competences and practices. Our sample offered a wide range. These islands could be either real or imaginary. Reading a book could be an island of enjoyment, as could dining at a restaurant. Interestingly, these islands were frequently linked to practices demanding no or few materials, for example, gardening or hiking. As Sabine (age 49) proposes,

I also sometimes have weekends where I read no newspaper, watch no television, just go into the garden and do not want to think about the world.

However, these meanings required a certain kind of reflection on one's own needs and the critical analysis of possibilities and potential islands of enjoyment. Of course, all respondents live in a contemporary consumerist culture (Warde, 2005). Accordingly, many of them share consumerist values or attitudes and invariably consume to find meaning and satisfaction in life (Vermeir & Verbeke, 2006). Consumerism has emerged as part of a historical process that has created mass markets, industrialization, and cultural dispositions to ensure that rising incomes are used to purchase an ever-growing output. However, the insight that consumer classes all over the world are no longer finding happiness in ever-growing consumption is gaining attention (e.g., Jackson, 2005a). It thus becomes more likely that people could increase their quality of life by reducing and critically scrutinizing their consumption levels (Lyubomirsky et al. 2005).

### ***Guiding Principle: Linking Daily Alternative Consumption Strategies with Personal Benefits***

The most common everyday-life strategy to reduce personal consumption levels seems to be to reuse goods by extending their use phase and by sharing. Very often, these strategies were explicitly linked to specific fields of action. Furthermore, in Germany there is great disparity across age groups. To differentiate demographic groups by their habits, older persons very often engage in sewing and

repairing clothes, empty nesters invest their personal resources in repairing goods, and younger people emphasize sharing goods and using second-hand clothes. Regarding household management, a majority of respondents tried to maintain goods for as long as possible. Moreover, among them it was common to pass on items, especially clothes, and particular children's apparel, to other people, often in the same neighborhood. This performance coincides with a welfare orientation.

Sharing goods had great interest among the respondents, depending on the field of action. Thus, only a minority would share a car. Often, the fear of losing flexibility was the leading reason to avoid this kind of sharing, particularly for older people. Although younger respondents had a high acceptance rate regarding sharing everyday objects—especially if they lived in a shared apartment—the empty nesters were more skeptical, even if some saw great opportunities. Older respondents were, though, more open-minded about the sharing of gardening tools and similar materials. Particularly in Germany, the sharing of goods in younger stages of life is quite widely accepted, while with increasing age the demand for convenience has been partially, but continuously, growing, even if people reflected on their own prosperity and realized “how much less” they needed. Among those surveyed, sharing and reusing goods were not strictly linked to environmentally friendly meanings. Saving money was the main reason, while eco-friendliness was often appreciated as a cobenefit. Further advantages, such as healthfulness and well-being, also influenced individual choices.

We point out sufficient strategies that are part of daily structures and especially linked to individual benefits. Especially in the field of mobility, money-saving strategies and health concerns are leading motivations. Several respondents, independent of age, tried, for example, to bike and walk short distances. Thus, they integrated multiple benefits into their actions. Interestingly, due to their own beliefs and convictions, the respondents did not worry about any discomfort.

I used the tram for commuting. And now for about a year I'm not doing this anymore, I walk now. Very consciously, I do this for me, and also for the environment. In order to increase my daily fitness and since I am used to it, and now I feel stressed by all these underground stations with the constant delays and afterwards I always feel nervous. If I make the journey on foot, I calm down (Beate, age 53).

As several studies have shown, a sufficient behavioral pattern is linked to a set of meanings, a notion displayed in the sample (Stengel, 2011; Liedtke et al. 2012). Overall meanings previously discussed, such as the definition of property as ballast or the experience of islands of enjoyment, interacted with other daily meanings that were connected to flexibility, expenditures, environmental protection, or health concerns. This was exemplified for the practice of mobility, where different meaning structures and performance patterns (at the level of individual practice performance) led to the outcome of using a bicycle instead of a car (see Figure 4).

A practice, which may go along with a sufficient lifestyle, was typically formed through different meanings. Whereas Simon and Hugo used their bikes as easy-going vehicles, when allowed by learning and infrastructural conditions, Ruth and Markus rode for the benefits of health and well-being. The data show that different meanings can overlap and still lead to the same kind of practice performance, in this case using a bicycle instead of a private car (e.g., due to budget considerations, ease of use, environmental considerations, health issues). When meanings pointing in the same direction overlap, we can assume that the kind of practice performance (biking) is more established as a routine. We can thus classify such meanings as valuable in the context of sufficiency since they can lead to a valuable output.

Furthermore, the meanings that are subsets of the overall meanings defining property as ballast while searching for islands of enjoyment may be very different, even if there is overlap. In particular, the meaning of “environmental friendliness” does not have to be at the center of the leitmotifs to lead to sufficient actions.

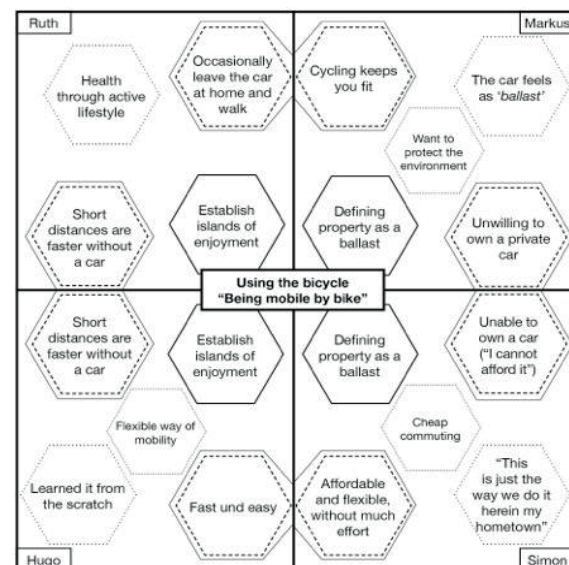
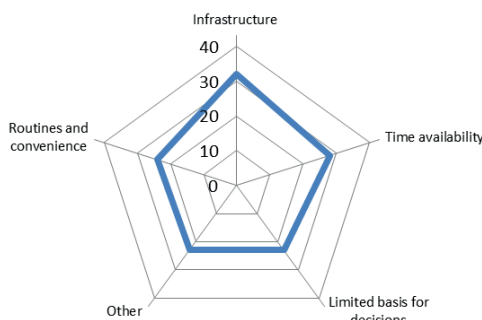


Figure 4 One practice, several meanings

### Barriers and Obstacles

Recent studies have discussed various obstacles to sustainable consumption and a more sufficient life (Alexander, 2012; Schäfer et al. 2012). The lack of suitable public transport, employment, product information, social activities, and housing, combined with a surfeit of consumer temptations, may significantly impede effective changes toward more sufficient behavior, unrelated to country differences. Constraints seem to include the fear of a loss of opportunities, habit, and status, as well as failure anxiety, uneasiness, social disintegration, lack of knowledge, and unwillingness to move away from an acquired consumption and comfort level. Considering our respondents, Figure 5 provides an overview of the various barriers, as highlighted in our interviews. In the following sections, we show how these obstacles are connected to daily performances and how the participants managed them or even bypassed them altogether (the category “other” includes, for example, personal inadequacies).



**Figure 5** Mentioned barriers in the context of a sufficient lifestyle (multiple answers possible)

### Infrastructure and Time Availability

Infrastructure and daily necessities from everyday life were mentioned as obstacles when developing a sufficient lifestyle. Strategies such as reducing distances and limiting mobility were explicitly linked to this objective. To remove these barriers, low-impact lifestyles require one to, for example, change his or her transportation behavior. The question of mobility is an instance of “how structure can lock people into high impact consumption” (Alexander, 2011). Correspondingly, depending on infrastructure and a daily schedule, sufficiency seems impossible for many participants, even if they would like to implement substantial changes. Especially in more rural areas, a car is necessary, particularly if one has to care for children or grandchildren. Respondents thus managed their transportation and followed the meaning of saving

money, but saw additional benefit to the natural environment.

At home and here in the city where I work, I partially go by bike and partially bus. But I am strongly involved in politics in my county, and there the public transport is partly unreasonable; for example, if I have a meeting, then I’m going to my working city by car...I have to do that to be on time. But my first priority is using my bicycle, then train and bus, and then car (Sabine, age 49).

It is obvious that Sabine handled the problem of infrastructural binding to extant transportation systems by staying creative and setting her own priorities. She dealt with the given structure, tried to make the best of it, and remained flexible. Thus, she individually reduced the constraining effects of the infrastructure, because if she had the choice, she would have used the most environmentally friendly solutions. Further, she was trying to create her own mobile space—she had her own bike in the city where she worked and tried to stay adaptable by using it.

Clearly, the meanings of flexibility and creativity helped respondents to overcome obstacles and to arrange for sufficiency-oriented performance with their own individual changes, but without a wider social change. The decisive difference between conventional and sufficient shaping of practice performance was that the former acquiesced to perceptions of infrastructural barriers as insurmountable and definitions of one’s own routines of, for example, using a private car as unavoidable, given the prevailing transportation system. By contrast, sufficient performance was linked to accepting the challenges of the mobility system, but nonetheless riding a bicycle or using public transportation. Meanings associated with these practice performances can be shown to conflict and using a car is even perceived as a form of discomfort, while conventionally oriented consumers feel the opposite way. Effects of barriers are, thus, also shaped by meanings.

### Routines, Habits, and Convenience

As Jaeger-Erben (2010) contends, habits are an essential obstacle to the promotion of sustainable everyday-consumption patterns. This was noticeable in our sample, but routines were also very important when considering sufficient behavior. Habits and convenience could be anti-drivers for sustainable behavior, but in light of our results, they were also supportive elements toward a more sufficient lifestyle. Habits, which could be understood as



sufficient behavior patterns, could be influenced by other circumstances, such as phase of life or infrastructure, and implemented without any special orientation. Often, the respondents defined their own meaning regarding “level of convenience.”

This was expressed in different fields of action, but routines could be either very sufficient or a very nonsufficient, especially in the field of mobility. The following excerpts indicate the impact of routines.

I really only drive my car because it is a pure luxury item and that is what I enjoy. But this is also the only thing where I treat myself (Joachim, age 50).

[B]ut the bike has also influenced me. I’ve always done it, even as a teenager, I have always used the bicycle. And it’s easy. So why would you go the two kilometers to the city center by car and look for a parking space? (Hugo, age 62).

The mobility habits of our respondents seemed essentially guided by the meaning “level of convenience” and individual demands. While Joachim regarded his private car as a luxury item, Hugo assigned more negative impacts to an automobile and implemented his mobility preferences by *not using* the vehicle. Again, as the example for infrastructure and time availability shows, some flexibility and reflection is present in more sufficient behavior patterns. Further, Hugo subscribed to the idea of simplifying his everyday practices. Hence, the concept of Fischer & Griebhammer (2013) of several steps toward sufficiency is the one to consolidate.<sup>11</sup> The solution that was understood as relatively more sufficient was, in the eyes of the beholders, the easier one. Within this practice, minor side effects, such as the search for a parking place, which may be time-consuming, were present for Hugo. Thus, if routines are to follow the meaning of the “easiest solution,” and this is linked to the overall consideration of the specific convenience level, sufficient solutions could become more attractive to the individual.

Habits and their meanings provide an important avenue for changing to a more sufficient society. At this stage of our research, it is only possible to consider, especially in the field of mobility, why people develop such disparate meanings. Particularly in this case, several factors, such as living in a rural area, in contrast to a city or a different experience of

the socialization process, come into play. It is thus necessary to examine life conditions in greater detail, such as influential life-course transitions that may indicate several meanings.

### Major Practices in a Sufficient Life

The question arises as to what needs to change for people to conduct themselves in a more sufficient way. To begin to formulate an answer, it is necessary to identify specific social sufficiency practices. For this purpose, we screened in detail seven interviews with respondents categorized as having a strong orientation toward sufficient action. This selection process was designed to identify practices carried out by a majority of our interviewees that were, at the same time, relevant to the wider public.

In the field of nutrition, our analysis shows that sufficient social practices are performed in the main areas of procurement, preparation, and disposal. The seven respondents explained that they purchased groceries at weekly markets where they were able to buy regional organic products or to shop in organic supermarkets or health-food stores. They tried to follow their conceptions of “less artificiality”—products should be as basic and entail as little processing as possible. Our respondents also often cooked within their daily routines. To expand their knowledge and techniques, they collected culinary information or tried new foods and learned new preparation techniques.

The respondents were also open to the notion of a primarily vegetarian diet. However, often they did not go completely in this direction, but returned to a “Sunday tradition” of eating meat. Even though less sufficient people often emphasized budget restrictions as a rationale not to shop for organic food, five respondents here—after changing their shopping routines—did not question their decision. None of our interviewees returned to buying cheaper food in a discount store even if their monthly budget was limited. This was underlined by one of our respondents:

You can cook organic food on a low budget, but you have to change your cooking routines. A piece of meat, etc.—this food is much more expensive. If you buy more grain and seasonal vegetables, etc., you may save a lot—and it is not expensive; you have to do some rethinking of practices (Marie, age 54).

A drastic change in food choice and preparation practices had occurred over time. Consumers might need to process products on their own—for example,

<sup>11</sup> For instance, if consumers have a refrigerator at home the most sufficient way of acting would be to remove it and try to do without such an appliance. A less radical way of sufficiency would be to reduce the size of the refrigerator and buy a very energy-efficient one.

grain needs be ground. This requirement coincided with increased time for preparation and information gathering, activities that less-sufficient people generally sought to avoid. Over the longer term, however, these new practices became routinized and, thus, relatively easy. In general, all of the practices that our respondents described are well-known and did not require new technologies or entail significant costs.

Regarding mobility, one decisive aspect of mainstream practices is the “material” element of actually owning a private car. Two of the seven sufficient subjects completely abstained from automobiles; a third respondent owned a personal vehicle but shared it with other users in the neighborhood. Yet another individual owned a car with a natural-gas engine. Decisions about mobility practices were strongly dependent on the available options, as Sabine stated. She used her bike for short distances, or walked. For commuting to work, which required four trips each week, she used a regional train as often as possible, at least two to three times each week. Upon arrival, she used her bike to travel the last three kilometers to her workplace. In general, she used the car once a week, which was justified by the fact that she did volunteer work and these dates were always in the evening when she was not able to go by train.

In the example, Sabine tried to meet her own ideas of mobility. She also had very definite conceptions regarding transportation and expressed herself quite clearly:

But first priority is to ride a bicycle, then train and bus and car (Sabine, age 48).

Markus, however, deliberately rejected owning a car, primarily because “in the city” it was not necessary and he appreciated his daily strolls and bicycle routes. Further, the social environment can influence mobility practices, as related by another respondent.

[Twenty years ago], I had three children, was employed and we were living in the countryside; now we are more centrally located, we live near the city center. There were times to use the car, it was necessary and I believe that if you have an everyday schedule which is absolutely packed with little time resources, I’ve experienced myself, so at times I tried to save or to fight for leisure, even if you have an environmental awareness...it was harder, so now in this phase of life, I find it’s easier to say, now I go by bike and just go shopping

because I might not have to be back in twenty minutes (Eveline, age 53).

Thus, the decision to choose one mobility mode or another usually depended on life phases or job situations.

Housing did seem particularly important to many of our seven respondents and only one of them had undertaken renovations in recent years. Of the other six individuals, two owned a house, two owned an apartment, and the others were tenants. Thus, the majority had not considered an investment in renovation. However, all seven respondents indicated that they used resources such as water, electricity, and natural gas very sparingly, but did not evince any special practices.

Moreover, it appears that sufficient people put more emphasis on social or voluntary activities, as well as on less materialistic hobbies. For example, Markus participated in a sports program every day by bicycle and emphasized that for him cycling was a pastime even though he did not care about wearing multifunction clothes or other paraphernalia. He enjoyed cycling outdoors and rejected all practices that required acts of consumption such as becoming a member of a fitness club. Sabine spent her free time reading or gardening. Marie was active in art and tried to work with recycling old materials. All seven respondents declared that they loved to go on vacation, but that there was no need for a “great holiday.” Many of our interviewees preferred “nearby destinations” in Germany or Europe that could be reasonably accessed by train. The majority liked to go camping as well.

## Conclusion

Both an analysis of dynamics in social practices and a differentiation of sufficiently sustainable actions in private households are necessary to build a model of target-oriented sufficient behavior (Liedtke et al. 2013; Lukas et al. 2013). To do so, in this study we integrated concepts of social practice theory to explore sufficiency practices in daily routines. From our perspective, social practices must be regarded as an important part of contemporary debates on sufficiency. They are cornerstones for implementation and provide a framework to assess changes in consumption routines at a micro-level, even though without further synthesis of evidence it remains uncertain whether the study of social practices is useful.

We have sought to demonstrate that sufficient consumption patterns can be traced to social practices of everyday actions, avoiding normative prescriptions or moralization of consumption behavior. Instead, by

screening an empirical data set, we have examined how the concept of sufficiency is presumably linked to everyday practices and that it may be easily integrated into lifeways if a person subscribes to an underlying philosophy that shapes behavior. We have investigated changing procedures along the three dimensions of social practices—meanings, competences, and materials—that can provide starting points for changing practices toward sufficient patterns. Our data and analysis show that sufficiency, while often marginalized in debates over sustainability strategies, can lower individual environmental impacts when defined from empirical grounds as a strategy for action and rooted in personal settings. For different reasons, we can assume that high environmental awareness leads people to restrict their consumption level and, contrary to some critiques, reduction is not primarily motivated by personal budget limitations. At the same time, we have aimed to avoid a purely constructivist analytical perspective that over-emphasizes the social construction of what can be regarded as sustainable. Rather, the empirically grounded practices of sufficiency should be analyzed together with sustainability impacts on an analytical level, both to account for findings within the field of sustainability science and to support clearly defined sustainable changes of practices (as entities) toward resource-light living.

The notion of meaning is a critical anchor—different competences and practices will derive from this point. Interestingly, pioneering examples are found in the fields of nutrition and mobility. Nutrition especially seems to be a domain that facilitates many changes and possibilities to act sufficiently. For instance, an organic diet often precedes an altered meaning that then manifests itself in everyday-practice performances. These, in turn, lead to changing competences, for example, cooking skills to serve a nutritious meal that is not based on animal protein. Further, guiding meanings are especially prone to being linked to several motivations and competences that are not strictly connected to a sufficient lifestyle, such as health concerns or saving strategies.

Based on these results, we emphasize that previously proposed sufficiency priorities (e.g., Kleinhüchelkotten, 2005), such as the attitude of thriftiness, should not be used as guiding principles for further motivating sufficiency. More or less, sufficiency is about the quality aspects of products (e.g., durability) and the idea of using fewer goods. Furthermore, strategies such as sharing, repairing, and reusing should become an increasingly common part of life and have to be supported socially as well

as through infrastructure (Leismann et al. 2013, Schäfer et al. 2012).

Our main point is that sufficiency occurs in everyday practices, a more attractive principle than social science currently considers. We do not know if sufficient behaviors are intentional or if they are side-effects of other goals, such as the realization of a healthy lifestyle or a synergy to save money. In the end, this does not make any difference for lifestyle changes. From our point of view, enabling alternative practices toward a more resource-light society can have an impact.

Nevertheless, sufficient lifestyles may encounter infrastructural barriers arising from, for example, dependencies associated with the time regime of social practices that are individually unchangeable at first glance. Still, science and politics need to focus on enabling conditions to support the spread of sufficient practices. Key among these are recycling, reusing, and sharing, or more specifically repair cafés or sharing stations. The idea is that if more and more possibilities exist in daily life to guide sufficient practices these practices will become routinized.

Our study provides a framework to work toward such a goal and tries to re-evaluate sufficient practices. The practice-theoretical framework suggests equal treatment of structural features and agency. To sum up, the advantage of using practice theory for our analysis is twofold: 1) it is useful to empirically locate sufficiency at the level of action and not moral considerations alone and 2) it helps to overcome the perspective that, for a more resource-light society, all individuals need to be persuaded to make different choices, that is change their values and consumption decisions. Rather, when modifications in the elements of practices become effective (taking on a different meaning) at the level of practice-as-entity, currently “normal” performances will become delegitimized and subsequently disappear for the broad majority of practitioners.

Even though we have been primarily interested in forms of agency toward shaping a sufficient lifestyle, we emphasize that structural features are equally important and go beyond simple individual responsibility. Policy goals also need to be designed to change practices, including infrastructure for sustainable systems of provision and developing competences, as well as the formulation of policies supporting sufficiency (Schneidewind & Zahrnt, 2013; Walker, 2015). Making use of practice theories, however, means showing how agency is performed despite the social norms of consumerism and infrastructural barriers. Respondents who may be characterized as sufficient act within their daily limitations of time regimes and infrastructure in a

relatively resource-extensive way. Thus, a change toward sufficient living is not solely linked to societal changes. Everyone is able to act within his or her daily limitations in a relatively more sustainable way without completely rejecting consumption or waiting for political or infrastructural change, which may be slow to arrive.

## References

- Alcott, B. 2008. The sufficiency strategy: Would rich-world frugality lower environmental impact? *Ecological Economics* 64(4):770–786.
- Alexander, S. 2011. *Property Beyond Growth Toward a Politics of Voluntary Simplicity*. Faculty of Law, University of Melbourne, Melbourne. <http://simplicityinstitute.org/wp-content/uploads/2011/04/Property-Beyond-Growth1.pdf>.
- Alexander, S. 2012. Radical simplicity and the middle class: exploring the lifestyle implications of a “Great Disruption.” *Simplicity Institute Report*. <http://perma.culturenews.org/2012/09/28/radical-simplicity-and-the-middle-class-exploring-the-lifestyle-implications-of-a-great-disruption>.
- Assadourian, E. 2010. Transforming culture: from consumerism to sustainability. *Journal of Macromarketing* 30(2):186–191.
- Backhaus, J., Breukers, S., Mont, O., Paukovic, M., & Mourik, R. 2013. *Sustainable Lifestyles: Today's Facts and Tomorrow's Trends*. Sustainable Lifestyles 2015. [http://www.sustainable-lifestyles.eu/fileadmin/images/content/D1.1\\_Baseline\\_Report.pdf](http://www.sustainable-lifestyles.eu/fileadmin/images/content/D1.1_Baseline_Report.pdf).
- Bamberg, S. 2013. A stage model of self-regulated behavioral change. *Journal of Environmental Psychology* 34:151–159.
- Black, I. & Cherrier, H. 2010. Anti-consumption as part of living a sustainable lifestyle: daily practices, contextual motivations and subjective values. *Journal of Consumer Behavior* 9(6):467–487.
- Bliesner, A., Liedtke, C., Welfens, M., Baedeker, C., Hasselkuß, M., & Rohn, H. 2014. “Norm-oriented interpretation learning” and resource use: the concept of “open-didactic exploration” as a contribution to raising awareness of a responsible resource use. *Resources* 3(1):1–30.
- Brand, K.-W. 2010. Social practices and sustainable consumption: benefits and limitations of a new theoretical approach. In M. Gross & H. Heinrich (Eds.), *Environmental Sociology: European Perspectives and Interdisciplinary Challenges*. pp. 217–235. Dordrecht: Springer.
- Buhl, J. 2014. Revisiting rebound effects from material resource use: indications for Germany considering social heterogeneity. *Resources* 3(1):106–122.
- Cajaiba-Santana, G. 2014. Social innovation: moving the field forward—a conceptual framework. *Technological Forecasting and Social Change* 82:42–51.
- Cherrier, H., Black, I., & Ian, M. 2011. Intentional non-consumption for sustainability: Consumer resistance and/or anti-consumption? *European Journal of Marketing* 45(11–12):1757–1767.
- Cherrier, H. & Gurrieri, L. 2013. Anti-consumption choices performed in a drinking culture: normative struggles and repairs. *Journal of Macromarketing* 33(3):232–244.
- Cohen, M., Szeijnwald Brown, H., & Vergragt, P., Eds. 2013. *Innovations In Sustainable Consumption: New Economics, Socio-technical Transitions, and Social Practices*. Northampton, MA: Edward Elgar.
- Corbin, J. & Strauss, A. 2008. *Qualitative Research*, 3rd Ed. Thousand Oaks, CA: Sage.
- Defila, R., Di Giulio, A., & Kaufmann-Hayoz, R. 2012. *The Nature of Sustainable Consumption and How to Achieve it*. Munich: Oekom Verlag.
- Diekmann, A. & Preisendörfer, P. 1992. Persönliches Umweltverhalten [Personal environmental behavior]. *Kölner Zeitschrift Für Soziologie Und Sozialpsychologie* 2:226–251.
- Diekmann, A. & Preisendörfer, P. 1998. Umweltbewusstsein und Umweltverhalten in Low- und High-Cost-Situationen [Environmental awareness and behavior in low- and high-cost situations]. *Zeitschrift Für Soziologie* 27(6):438–453.
- Evans, D. 2011. Blaming the consumer—once again: the social and material contexts of everyday food waste practices in some English households. *Critical Public Health* 21(4):429–440.
- Fischer, C. & Griebhammer, R. 2013. *Mehr als nur Weniger: Suffizienz: Begriff, Begründung, und Potenziale* [More than just less: sufficiency: term, reasons, and potentials]. Öko-Institut Working Paper 02/2013. Freiburg: Ökoinstitut.
- Fuchs, D. & Lorek, S. 2005. Sustainable consumption governance: a history of promises and failures. *Journal of Consumer Policy* 18:261–288.
- Giddens, A. 1984. *The Constitution of Society: Outline of the Theory of Structuration*. Berkeley, CA: University of California Press.
- Giddens, A. 1991. *Modernity and Self-identity: Self and Society in the Late Modern Age*. Malden, MA: Polity Press.
- Glaser, B. & Strauss, A. 1967. *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Chicago: Aldine.
- Gregg, R. 1936. *The Value of Voluntary Simplicity*. Wallingford, PA: Pendle Hill.
- Gronow, J. & Warde, A. 2001. *Ordinary Consumption*. New York: Routledge.
- Halkier, B. & Jensen, I. 2011. Methodological challenges in using practice theory in consumption research: examples from a study on handling nutritional contestations of food consumption. *Journal of Consumer Culture* 11(1):101–123.
- Hamilton, C. & Mail, E. 2003. *Downshifting in Australia: A Sea-change in the Pursuit of Happiness*. Discussion Paper No. 50. Canberra: The Australia Institute. [http://www.tai.org.au/documents/dp\\_fulltext/DP50.pdf](http://www.tai.org.au/documents/dp_fulltext/DP50.pdf)
- Hargreaves, T. 2011. Practicing behaviour change: applying social practice theory to pro-environmental behaviour change. *Journal of Consumer Culture* 11(1):79–99.



- Hargreaves, T., Longhurst, N., & Seyfang, G. 2013. Up, down, round and round: connecting regimes and practices in innovation for sustainability. *Environment and Planning A* 45(2):402–420.
- Jackson, T. 2005a. Live better by consuming less? Is there a “double dividend” in sustainable consumption? *Journal of Industrial Ecology* 9(1–2):19–36.
- Jackson, T. 2005b. *Motivating Sustainable Consumption: A Review of Evidence on Consumer Behaviour and Behavioural Change*. Guildford: Centre for Environmental Strategy, University of Surrey. <http://www.comminit.com/en/node/219688/306>. November 2, 2015.
- Jaeger-Erben, M. 2010. *Zwischen Routine, Reflektion und Transformation: die Veränderung von alltäglichem Konsum durch Lebensereignisse und die Rolle von Nachhaltigkeit [Between Routine, Reflection and Transformation: The Change in Everyday Consumption Through Live Events and the Role of Sustainability]*. Berlin: Faculty of Planning, Building, and Environment, Technical University Berlin.
- Kenis, A. & Mathijs, E. 2012. Beyond individual behaviour change: the role of power, knowledge and strategy in tackling climate change. *Environmental Education Research* 18(1):45–64.
- Kleinhückelkotten, S. 2005. *Suffizienz und Lebensstile [Sufficiency and Lifestyles]*. Berlin: Berliner Wissenschafts-Verlage.
- Lee, M., Motion, J., & Conroy, D. 2009. Anti-consumption and brand avoidance. *Journal of Business Research* 62: 169–180.
- Leismann, K., Schmitt, M., Rohn, H., & Baedeker, C. 2013. Collaborative consumption: towards a resource-saving consumption culture. *Resources* 2(3):184–203.
- Leonard-Barton, D. 1981. Voluntary simplicity lifestyles and energy conservation. *Journal of Consumer Research* 8(3):243–252.
- Lettenmeier, M., Göbel, C., Liedtke, C., Rohn, H., & Teitscheid, P. 2012. Material footprint of a sustainable nutrition system in 2050: need for dynamic innovations in production, consumption and politics. In U. Rickert & G. Schiefer, Eds., *Proceedings in System Dynamics and Innovation in Food Networks*. pp. 584–598. Bonn: University of Bonn.
- Lettenmeier, M., Liedtke, C., & Rohn, H. 2014. Eight tonnes of material footprint: suggestion for a resource cap for household consumption in Finland. *Resources* 3(3): 488–515.
- Liedtke, C., Baedeker, C., Hasselkuß, M., Rohn, H., & Grinewitschus, V. 2014. User-integrated innovation in Sustainable LivingLabs: an experimental infrastructure for researching and developing sustainable product service systems. *Journal of Cleaner Production* 97: 106–116.
- Liedtke, C., Buhl, J., & Ameli, N. 2013. Designing value through less by integrating sustainability strategies into lifestyles. *International Journal of Sustainable Design* 5(3):1141–1160.
- Liedtke, C., Welfens, M. J., Rohn, H., & Nordmann, J. 2012. LIVING LAB: user-driven innovation for sustainability. *International Journal of Sustainability in Higher Education* 13:106–118.
- Linz, M. 2012. *Weder Mangel noch Überfluss: Warum Suffizienz unentbehrlich ist [Neither Abundance nor Shortage: Why Sufficiency is Indispensable]*. Munich: Oekom Verlag.
- Lukas, M. 2015. Suffiziente Haushalte: Möglichkeit oder Illusion? [Sufficient households: a possibility or illusion?]. *UWF–UmweltWirtschaftsForum* 23(1–2): 15–21.
- Lukas, M. 2013. Nachhaltiger Konsum und simplifizierte Lebensstile: welche Perspektiven zeigen sich im Alltag? [Sustainable consumption and simplified lifestyles: which prospects are there in everyday life?]. *Haushalt in Bildung & Forschung* 2(2):43–58.
- Lukas, M., Liedtke, C., Welfens, M. J., & Baedeker, C. 2014. *Suffizienz als Anknüpfungspunkt für ein nachhaltiges Handeln des verletzlichen Verbrauchers [Sufficiency as a Connecting Point for Sustainable Behaviour of Vulnerable Consumers]*. Düsseldorf: Verbraucherzentrale NRW.
- Lyubomirsky, S., Sheldon, K., & Schkade, D. 2005. Pursuing happiness: the architecture of sustainable change. *Review of General Psychology* 9(2):111–131.
- Matthies, E. 2005. Wie können PsychologInnen ihr Wissen besser an die PraktikerInnen bringen? Vorschlag eines neuen integrativen Einflusschemas umweltgerechten Alltagshandelns. [How can psychologists more effectively provide practitioners with knowledge? Proposal of a new, integrated way of influencing environmental-friendly everyday action]. *Umwelt-psychologie* 9(1):62–81.
- Meadows, D., Rander, J., & Meadows, D. 2004. *The Limits to Growth: The 30 Years Update*. 3rd Ed. White River Junction, VT: Chelsea Green.
- Möser, G. & Bamberg, S. 2008. The effectiveness of soft transport policy measures: a critical assessment and meta-analysis of empirical evidence. *Journal of Environmental Psychology* 28:10–26.
- Müller, C. & Paech, N. 2012. Suffizienz und Subsistenz [Sufficiency and subsistence]. In *Der kritische Agrarbericht [Critical Agricultural Report]*. pp. 148–152. Hamm: ABL-Verlag.
- Opschoor, J. 1995. Ecospace and the fall and rise of throughput intensity. *Ecological Economics* 15(2):137–140.
- Osterveer, P. and Sonnenfeld, D. Eds. 2012. *Food, Globalization, and Sustainability*. New York: Routledge.
- Paech, N. 2013. *Das Konzept der Postwachstumsökonomie als Rückbau industrieller, global arbeitsteiliger Wertschöpfungsprozesse. [The concept of a Post-growth Economy as a Basis of Industrial, Global and Collaborative Value Chains]*. Vortrag im Rahmen der Tagung Ohne Wachstum Wirtschaften? [Paper presented at the conference Economics Without Growth], Hochschule Bremen, 18 June. [https://www.hs-bremen.de/internet/einrichtungen/kooperation/aktivitaeten/2013-18-06/paech-2013\\_06\\_18-bremen-hochschule.pdf](https://www.hs-bremen.de/internet/einrichtungen/kooperation/aktivitaeten/2013-18-06/paech-2013_06_18-bremen-hochschule.pdf).
- Princen, T. 2005. *The Logic of Sufficiency*. Cambridge, MA: MIT Press.

- Reckwitz, A. 2002. Toward a theory of social practices: a development in culturalist theorizing. *European Journal of Social Theory* 5(2):245–265.
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F., Lambin, E., Lenton, T., Scheffer, M., Folke, C., Schellnhuber, H., Nykvist, B., De Wit, C. A., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P. K., Costanza, R., Svedin, U., Falkenmark, M., Karlberg, L., Corell, R. W., Fabry, V. J., Hansen, J., Walker, B., Liverman, D., Richardson, K., Crutzen, P., and Foley, J. 2009. Planetary boundaries: exploring the safe operating space for humanity. *Ecology and Society* 14(2):32.
- Rohn, H., Pastowski, N., & Lettenmeier, M. 2013. *Ressourceneffizienz: Potentiale von Technologien, Produkten und Strategien [Resource Efficiency: Potentials of Technologies, Products and Strategies]*. Stuttgart: Fraunhofer Verlag.
- Röpke, I. 2009. Theories of practice: new inspiration for ecological economic studies on consumption. *Ecological Economics* 68(10):2490–2497.
- Sahakian, M. & Wilhite, H. 2013. Making practice theory practicable: towards more sustainable forms of consumption. *Journal of Consumer Culture* 14(1):25–44.
- Sage, C. 2014. The transition movement and food sovereignty: from local resilience to global engagement in food system transformation. *Journal of Consumer Culture* 14(2):254–275.
- Sanne, C. 2002. Willing consumers—or locked-in? Policies for a sustainable consumption. *Ecological Economics* 42(1–2):273–287.
- Schäfer M., Jaeger-Erben M., Bamberg S. 2012. Life events as windows of opportunity for changing towards sustainable consumption patterns? *Journal of Consumer Policy* 35(1):65–84
- Schatzki, T. 1996. *Social Practices: A Wittgensteinian Approach to Human Activity and the Social*. New York: Cambridge University Press.
- Schneidewind, U. & Zahrt, A. 2013. *Damit gutes Leben einfach wird. Perspektiven einer Suffizienzpolitik [The Politics of Sufficiency: Making it Easier to Live the Good Life]*. Munich: Oekom Verlag.
- Schor, J. 1998. *The Overspent American: Upscaling, Downshifting, and the New Consumer*. New York: Basic Books.
- Schor, J. 2011. *True Wealth: How and Why Millions of Americans Are Creating a Time-Rich, Ecologically Light, Small-Scale, High-Satisfaction Economy*. New York: Penguin.
- Schrader, U., Liedtke, C., Lamla, J., Arens-Azevedo, U., Hagen, K., Jaquemoth, M., Kenning, P., Schmidt-Kessel, M. & Strünck, C. 2013. Verbraucherpolitik für nachhaltigen Konsum: Verbraucherpolitische Perspektiven für eine nachhaltige Transformation von Wirtschaft und Gesellschaft [Consumer policy for sustainable consumption: prospects for a sustainable transformation of economy and society]. In *Stellungnahme des wissenschaftlichen Beirats Verbraucher und Ernährungspolitik beim BMELV [Opinion of the Scientific Advisory Board on Consumer and Food Policy at the BMELV]*. [http://www.bmel.de/SharedDocs/Downloads/Ministerium/Beirats/Verbraucherpolitik/2013\\_12\\_Nachhaltige\\_rKonsum.html](http://www.bmel.de/SharedDocs/Downloads/Ministerium/Beirats/Verbraucherpolitik/2013_12_Nachhaltige_rKonsum.html). October 26, 2015.
- Schrader, U. & Thøgersen, J. 2011. Putting sustainable consumption into practice. *Journal of Consumer Policy* 34(1):3–8.
- Shallcross, T. & Robinson, J. 2007. Is a decade of teacher education for sustainable development essential for survival? *Journal of Education for Teaching: International Research and Pedagogy* 33(2):137–147.
- Shove, E. & Pantzar, M. 2005. Consumers, producers and practices: understanding the invention and reinvention of Nordic walking. *Journal of Consumer Culture* 5(1): 43–64.
- Shove, E., Pantzar, M., & Watson, M. 2012. *The Dynamics of Social Practice: Everyday Life and How it Changes*. Thousand Oaks, CA: Sage.
- Spaargaren, G. 2003. Sustainable consumption: a theoretical and environmental policy perspective. *Society and Natural Resources* 16(8):687–701.
- Spaargaren, G. 2011. Theories of practice: agency, technology, and culture: exploring the relevance of practice theories for the governance of sustainable consumption practices in the new world-order. *Global Environmental Change* 21(3):813–822.
- Spaargaren, G. & Vliet, B. 2000. Lifestyles, consumption and the environment: the ecological modernisation of domestic consumption. *Environmental Politics* 9(1): 50–77.
- Spangenberg, J. & Lorek, S. 2002. Environmentally sustainable household consumption: from aggregate environmental pressures to priority fields of action. *Ecological Economics* 43(2002):127–140.
- Speck, M. 2016 (forthcoming): *Konsum und Suffizienz: Wann kann weniger mehr sein? Eine empirische Untersuchung privater Haushalte in Deutschland [Consumption and Sufficiency: An Empirical Study of Private Households in Germany]*. Published Doctoral Dissertation. Berlin: Springer.
- Der Spiegel*. 2014. Konsumverzicht: Weniger haben, glücklicher leben [Cutting consumption: less stuff, more happiness] *Der Spiegel* Issue 14. <http://www.spiegel.de/spiegel/print/index-2014-14.html>. October 22, 2015.
- Stengel, O. 2011. *Suffizienz: Die Konsumgesellschaft in der ökologischen Krise [Sufficiency: The Ecological Crisis of the Consumer Society]*. Munich: Oekom Verlag.
- Strengers, Y. & Maller, C., Eds. 2015. *Social Practice, Intervention and Sustainability: Beyond Behaviour Change*. New York: Routledge.
- Thøgersen, J. & Ölander, F. 2002. Human values and the emergence of a sustainable consumption pattern: a panel study. *Journal of Economic Psychology* 23(5): 605–630.
- Tukker, A., Cohen, M., Hubacek, K., & Mont, O. 2010. The impacts of household consumption and options for change. *Journal of Industrial Ecology* 14(1):13–30.
- Tukker, A., Emmert, S., Charter, M., Vezzoli, C., Sto, E., Munch Andersen, M., Geerken, T., Tischner, U., & Lahlou, S. 2008. Fostering change to sustainable

- consumption and production: an evidence based view. *Journal of Cleaner Production* 16(11):1218–1225.
- Vermeir, I. & Verbeke, W. 2006. Sustainable food consumption: exploring the consumer “attitude–behavioral” gap. *Journal of Agricultural and Environmental Ethics* 19(2):169–194.
- Walker, G. 2015: Beyond individual responsibility: social practice, capabilities and the right to environmentally sustainable ways of living. In: Strengers, Y. & Maller, C., Eds. *Social Practice, Intervention and Sustainability: Beyond Behaviour Change*. pp. 63–77. New York: Routledge.
- Warde, A. 2005. Theories of Practice as an Approach to Consumption. Manchester: Centre for Research on Innovation and Competition and Department of Sociology, University of Manchester.
- Watson, M. 2012. How theories of practice can inform transition to a decarbonised transport system. *Journal of Transport Geography* 24:488–496.
- Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen (WBGU) [German Advisory Council on Global Change]. 2011. *Welt im Wandel: Gesellschaftsvertrag für eine Große Transformation (Hauptgutachten) [World in Transition: A Social Contract for Sustainability (Flagship Report)]*. Berlin: WBGU.
- Wiesen, K., Wirges, M., Liedtke, C. 2014. *MIPS Calculation Sheets: Calculation Resource Intensity of Practices*. Wuppertal: Wuppertal Institute.
- Witzel, A. 2000. Das problemzentrierte Interview [The problem-centred interview]. *Forum: Qualitative Sozialforschung [Social Research]* 1(1), Art. 22. <http://www.qualitative-research.net/index.php/fqs/article/viewArticle/1132/2519>.